

## ASSIGNMENT 4

Textbook Assignment: "Structural and Architectural Drawings" and "Developments and Intersections," chapters 7 and 8.

● QUESTIONS 4-1 THROUGH 4-19 DEAL WITH  
STRUCTURAL SHAPES AND MEMBERS.

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| <p>4-1. A building project is divided into what phases?</p> <ol style="list-style-type: none"> <li>1. Design and production</li> <li>2. Design and construction</li> <li>3. Design, presentation, and construction</li> <li>4. Presentation, construction, and approval</li> </ol> <p>4-2. The structural load a proposed building will carry is decided by which of the following persons?</p> <ol style="list-style-type: none"> <li>1. The draftsman</li> <li>2. The engineer</li> <li>3. The architect</li> <li>4. Both 2 and 3 above</li> </ol> <p>4-3. You can find information on structural shapes and symbols in which of the following publications?</p> <ol style="list-style-type: none"> <li>1. ANSI 14.5/2 1982</li> <li>2. MIL-STD-18B, part 4</li> <li>3. American Society of Construction Engineers</li> <li>4. Both 2 and 3 above</li> </ol> <p>4-4. The dimension of the widest leg is always given first in the designation of what shape?</p> <ol style="list-style-type: none"> <li>1. Channel</li> <li>2. Angle</li> <li>3. Tee</li> <li>4. Tie rod</li> </ol> <p>4-5. A zee shape that is 4 inches in depth, has a 3 1/2-inch flange, and weighs 10.2 lbs. per linear foot is described in which of the following dimensions?</p> <ol style="list-style-type: none"> <li>1. Z 4 x 3 1/2 x 10.2</li> <li>2. S 10.2 x 3 1/2 x 4</li> <li>3. W 3 1/2 x 4 x 10.2</li> <li>4. Z 3 1/2 x 4 x 10.2</li> </ol> <p>4-6. Channel shapes are most commonly used in areas that require which of the following characteristics?</p> <ol style="list-style-type: none"> <li>1. Additional strength</li> <li>2. Built-up members</li> <li>3. Reinforcement</li> <li>4. A single flat face without outstanding flanges</li> </ol> | <p>4-7. An I beam shape with a dimension of 17 I 40.5 has what nominal depth?</p> <ol style="list-style-type: none"> <li>1. 40.5</li> <li>2. 57.5</li> <li>3. 17</li> <li>4. 17.5</li> </ol> <p>4-8. Tie rod and pipe columns are designated by what measurement(s)?</p> <ol style="list-style-type: none"> <li>1. Thickness</li> <li>2. Outside diameter</li> <li>3. Inside diameter</li> <li>4. Thickness and outside diameter</li> </ol> <p>4-9. The total weight of all people and movable objects that a structure supports at any one time is what type of load?</p> <ol style="list-style-type: none"> <li>1. Dead</li> <li>2. Live</li> <li>3. Cumulative</li> <li>4. Transfer</li> </ol> <p>4-10. The total load supported by a structural member at a particular instant is equal to what two types of loads?</p> <ol style="list-style-type: none"> <li>1. Transfer and cumulative</li> <li>2. Transfer and live</li> <li>3. Cumulative and dead</li> <li>4. Dead and live</li> </ol> <p>4-11. The soil bearing capacity is greatest when a structure has a wide foundation or footing.</p> <ol style="list-style-type: none"> <li>1. True</li> <li>2. False</li> </ol> |
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A. Beam	H. Pillar
B. Cantilever	I. Rafter plate
C. Column	J. Sill
D. Girder	K. Sole plate
E. Girt	L. Stud
F. Lintel	M. Top plate
G. Pier	N. Truss


Figure 4A

IN ANSWERING QUESTIONS 4-12 THROUGH 4-19, CHOOSE FROM FIGURE 4A THE STRUCTURAL MEMBER DESCRIBED IN THE QUESTION. SOME CHOICES MAY NOT BE USED.

- 4-12. A horizontal load-bearing structure that spans a space and is supported at both ends.
1. A
  2. B
  3. D
  4. M
- 4-13. Usually rests directly on footings.
1. C and H
  2. E and F
  3. H and K
  4. J and L
- 4-14. The chief vertical structural member used in the construction of lightweight buildings.
1. C
  2. E
  3. G
  4. L
- 4-15. Supports the ends of floor beams or joists in wood-frame construction.
1. D, E, and J
  2. E, H, and L
  3. F and G
  4. H and J
- 4-16. A member that is fixed at one end.
1. A
  2. B
  3. D
  4. I
- 4-17. Support the wall ends of rafters.
1. A and D
  2. G and H
  3. I and M
  4. K and L
- 4-18. May rest directly on a footing, or may be set or driven into the ground.
1. C
  2. G
  3. H
  4. L
- 4-19. Two horizontal members joined together by a number of vertical and/or inclined members.
1. B
  2. D
  3. L
  4. N
- 4-20. The process of riveting steel structures has been replaced by welding because of its greater strength and reduction of stress applied to the connection.
1. True
  2. False
- IN ANSWERING QUESTIONS 4-21 THROUGH 4-24, REFER TO THE WELD SYMBOL ELEMENTS IN FIGURE 7-4 IN THE TEXTBOOK.
- 4-21. What element shows the specification, process, or other reference as to the type of fabrication?
1. 5
  2. 6
  3. 7
  4. 8
- 4-22. In part 6, the letter G provides what information about the weld?
1. It will be finished by filing
  2. It will be finished by grinding
  3. It is double welded and ground
  4. It requires a 2-4 finish
- 4-23. In part 4, the symbols "1/2" and "2-4" show that the weld should be (a) how thick, (b) how long, and (c) have how much pitch?
1. (a) 2 inches, (b) 1/2 inch, (c) 4 inches
  2. (a) 1/2 inch, (b) 4 inches, (c) 2 inches
  3. (a) 4 inches, (b) 1/2 inch, (c) 2 inches
  4. (a) 1/2 inch, (b) 2 inches, (c) 4 inches
- 4-24. In part 2, the arrow provides what information about the weld?
1. Location
  2. Direction
  3. Type
  4. Degree of finish
- 4-25. When steel structures will be riveted, the rivet holes are always drilled during which of the following steps?
1. Fabrication
  2. Assembly on site
  3. Both 1 and 2 above
  4. Erection





4-26. What field riveting symbol shows that the rivet should be countersunk on both sides?

1. 
2. 
3. 
4. 

4-27. The shop riveting symbol  shows that the rivet should be installed in what way?

1. Countersunk and chipped on the near side
2. Countersunk and chipped on both sides
3. Countersunk and chipped on the far side
4. Riveted with two full heads

4-28. What shop riveting symbol shows that the rivet should be countersunk and not over 1/8 inch high on the far side?

1. 
2. 
3. 
4. 

IN ANSWERING QUESTIONS 4-29 THROUGH 4-33, SELECT FROM THE FOLLOWING LIST THE TYPE OF DRAWING DESCRIBED IN THE QUESTION.

- A. Layout
- B. General
- C. Fabrication
- D. Erection
- E. Falsework

4-29. These drawings show where temporary supports will be used in the erection of difficult structures.

1. B
2. C
3. D
4. E

4-30. The number of these drawings needed depends on the size and nature of the structure and the complexity of the operation.

1. A
2. B
3. C
4. D

4-31. These drawings provide information on the location, alignment, and elevation of the structure and principle parts in relation to the ground at the site.

1. A
2. B
3. C
4. D

4-32. These drawings contain necessary information on the size, shape, material, and provisions for connections and attachments for each member.

1. B
2. C
3. D
4. E

4-33. These drawings show the location of the various members in the finished structure.

1. B
2. C
3. D
4. E

4-34. Contours, boundaries, roads, utilities, trees, structures, and other physical features of a site are shown in what type of construction plan?

1. Framing
2. Floor
3. Plot
4. Site

4-35. What type of construction drawing shows plans and elevations on a small scale?

1. Plot
2. General
3. Detail
4. Site

● IN ANSWERING QUESTIONS 4-36 AND 4-37, REFER TO THE FOUNDATION PLAN IN FIGURE 7-9 IN THE TEXTBOOK.

4-36. The main foundation consists of what material(s)?

1. An 8-inch block wall on a 10-inch footing
2. An 8-inch block wall on a 12-inch footing
3. A 10-inch block wall on an 18-inch footing
4. A 10-inch block wall on an 18-inch footing

- 4-37. What are the dimensions of the piers?
1. 10 x 16 inches
  2. 12 x 12 inches
  3. 14 x 16 x 18 inches
  4. 14 x 18 x 20 inches
- 4-38. The length, thickness, and character of walls on one floor are shown in what type of plan?
1. Foundation
  2. Floor
  3. Framing
  4. Plot
- 4-39. The dimensions and arrangements of wood structural members are shown in what type of plan?
1. Floor
  2. Plot
  3. Utility
  4. Framing
- 4-40. Information on studs, corner posts, bracing, sills, and plates is provided in what type of plan?
1. Floor
  2. Plot
  3. Utility
  4. Framing
- 4-41. A builder decides where to leave openings for heating, electrical, and plumbing systems by using what type of plan?
1. Framing
  2. Plot
  3. Utility
  4. Floor
- 4-42. An elevation drawing shows which of the following views?
1. A horizontal view of the foundation
  2. A vertical view of doors and windows
  3. A two-dimensional view of roof framing
  4. A three-dimensional view of the location of utilities
- 4-43. When general plans of a given area such as a wall section contain insufficient information, the craftsman relies on what type of drawing?
1. Specification
  2. Detail
  3. Elevation
  4. Sectional
- 4-44. When a craftsman finds a discrepancy between the drawings and specifications, the drawings take precedence.
1. True
  2. False
- 4-45. What is the meaning of the term "sheet metal development?"
1. A three-dimensional object is formed on a flat piece of sheet metal
  2. A three-dimensional object is unrolled or unfolded onto a flat plane through the medium of drawn lines
  3. A pictorial drawing of an object is made from sheet metal in its true dimensions
  4. A three-view orthographic projection is made on sheet metal
- 4-46. In figure 8-1 of the text, view A shows what type of bend used on sheet metal?
1. A joint
  2. A seam
  3. An edge
  4. A rolled joint
- 4-47. Which of the following seams is the least difficult to make?
1. A flat lock seam
  2. A lap seam
  3. A cap strip connection
  4. An S-hook slip joint
- 4-48. In bending sheet metal, the bend allowance is computed along what part of the bend?
1. The neutral line
  2. The outside of the sheet metal as it is being stretched
  3. The inside of the sheet metal as it is being compressed
  4. The flat

- |    |                   |
|----|-------------------|
| A. | Base measurement  |
| B. | Bend allowance    |
| C. | Bend tangent line |
| D. | Flange            |
| E. | Flat              |
| F. | Leg               |
| G. | Mold line         |
| H. | Radius            |
| I. | Setback           |

Figure 4B

IN ANSWERING QUESTIONS 4-49 THROUGH 4-53, CHOOSE FROM THE METAL BENDING TERMS IN FIGURE 4B THE TERM DESCRIBED IN THE QUESTION. Some choices may not be used.

4-49. The outside diameter of the formed part.

1. A
2. C
3. D
4. E

4-50. The amount of metal used to make a bend.

1. A
2. B
3. C
4. D

4-51. A line formed by extending the outside surfaces of the leg and flange so they intersect?

1. B
2. C
3. G
4. H

4-52. The distance from the bend tangent line to the mold point.

1. C
2. D
3. G
4. I

4-53. The shorter part of a formed angle.

1. B
2. D
3. E
4. F

4-54. A surface is said to be developable if a thin sheet of flexible material can be wrapped smoothly about its surface.

1. True
2. False

4-55. What type of development refers to an object that has surfaces on a flat plane of projection?

1. Radial line
2. Straight line
3. Right pyramid
4. Oblique pyramid

4-56. In figure 8-9, part B, in the textbook, line E-1 is the true length of what line(s)?

1. A-1
2. B-2 and D-4
3. C-3
4. O-1 and O2

4-57. What type of pyramid has lateral edges of unequal length?

1. Right
2. Oblique
3. Orthographic
4. Isometric

4-58. In figure 8-11, view D, in the textbook, the true length of the truncated pyramid is represented by the point between what lines?

1. M-N
2. M-O
3. N-P
4. Y-Z

● QUESTIONS 4-59 THROUGH 4-61 DEAL WITH PARALLEL-LINE DEVELOPMENT AND FIGURES 8-12 AND 8-13 IN THE TEXTBOOK.

4-59 In figure 8-12, view A, the width of the cylinder is equal to what other of its measurements?

1. Height
2. Length
3. Height plus the seam allowance
4. Circumference

4-60 It is normal practice to place seams on the shortest side in sheet metal development. Which of the following forms is an exception?

1. Cylinder
2. Pyramid
3. Cone
4. Elbow

4-61. In figure 8-12, view B, points of intersection are established on the development for what purpose?

1. To determine its true length
2. To give it a curved shape
3. To determine its actual size
4. To ensure greater accuracy.

● QUESTIONS 4-62 THROUGH 4-69 DEAL WITH  
RADIAL-LINE DEVELOPMENT OF CONICAL  
SURFACES.

- 4-62. What two dimensions are necessary to construct a radial-line development of a conical surface?
1. The true length of the right angle and the diameter of its base
  2. The slant height of the cone and the diameter of the base
  3. The slant height of the cone and the circumference of the base
  4. The true length of the slant height of the cone and the angle of the cone
- 4-63. The size of the sector is determined by what dimensions?
1. The radius of the circle
  2. The height of the cone
  3. The sector minus the height of the cone
  4. The proportion of the height to the base diameter
- 4-64. When developing a regular cone, the element lines can be seen in their true length only under which of the following conditions?
1. The viewer is looking at them at right angles
  2. The development is completed
  3. A base line is established
  4. There is a projection to an auxiliary view
- 4-65. If a regular cone is truncated at an angle to the base, the inside shape on the development no longer has a constant radius.
1. True
  2. False
- 4-66. When developing a regular cone, the true length settings for each element are taken from what view(s)?
1. Top
  2. Side
  3. Front only
  4. Front and side
- 4-67. When the development of the sloping surface of a truncated cone is required, what view shows its true shape?
1. Orthographic
  2. Auxiliary
  3. Detail
  4. Isometric

- 4-68. Oblique cones are generally developed by using what method?
1. Straight-line development
  2. Radial-line development
  3. Triangulation
  4. Approximation
- 4-69. On an oblique cone, you should draw a true length diagram adjacent to the front view under which of the following circumstances?
1. When it is necessary to find the true length of several edges or elements
  2. When directed by notes and specifications
  3. When drawing radial-line developments
  4. When drawing straight-line developments

● QUESTIONS 4-70 THROUGH 4-73 DEAL WITH  
TRANSITION PIECES.

- 4-70. Nondevelopable surfaces require what type of development?
1. Straight line
  2. Radial line
  3. Triangulation
  4. Approximation
- 4-71. When a surface is developed from a series of triangular pieces laid side-by-side, the procedure is known by what term?
1. Transitioning
  2. Approximation
  3. Parallelizing
  4. Triangulation
- 4-72. To develop a square-to-round transition piece, you should take what step first?
1. Draw a true length diagram
  2. Draw the front view
  3. Draw the top and side views
  4. Develop the square piece
- 4-73. Rectangular-to-round transition pieces are developed in the same manner as square-to-round with which of the following exceptions?
1. All of the elements are centered on the same axis
  2. The rectangular-to-round requires auxiliary views
  3. All the elements are drawn to their true lengths
  4. All the elements are of different lengths